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Bacterial Wilt of Corn

Purdue University Cooperative Extension Service

Control PLANT DISEASES

on the farm

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Revised

BACTERIAL WILT OF CORN

Bacterial wilt, or Stewart's disease, is one of the most important diesases affecting sweet corn, and occasionally can be a problem in field corn.

The bacterium causing this disease overwinters in the bodies of corn flea beetles. When the adult beetles begin to feed on young corn seedlings in late spring and early summer, bacterial wilt infections start on the leaves. During the growing season these beetles continue to spread the disease from infected to healthy plants.

The prevalence and severity of Stewart's wilt varies from year to year, and is apparently related to the number of flea beetles that survive the winter months. During mild winters a large number of corn flea beetles will usually survive. As a result, the disease is abundant the next summer. Cold winters reduce flea beetle populations, and there are fewer of them to spread infection. Bacterial wilt has not been a serious problem on sweet corn in recent years.

Symptoms of Bacterial Wilt

In sweet corn, susceptible varieties and hybrids wilt rapidly and resemble plants with an inadequate water supply. Infected plants that do not die are stunted, tassel prematurely, and may produce no ears. In the early stages of the disease infected plants frequently show long, irregular, pale green to yellowish streaks in the leaves. Eventually the vascular bundles in the entire plant become filled with bacteria so that when the stalks are cut, yellow masses of the organisms ooze out and form beads on the cut surface. If small pieces of infected leaves are placed in a drop of water and observed through a microscope, clouds of bacteria flow from the cut ends of the vascular bundles. In severely infected plants, cavities may form in the pith of the stalk.

Dent corn is generally more resistant than sweet corn. Seldom does the disease spread through the entire dent corn plant, but in some very susceptible inbred lines it may. In such instances, the symptoms resemble those found in sweet corn. In dent corn, the characteristic symptom is the long, irregular, pale green streaks in the leaves that eventually turn yellow, or straw-colored, and then die.

Cause of Bacterial Wilt

Bacterial wilt of corn is caused by a bacterium, Xanthomonas stewartii. These bacteria enter corn plants through wounds in the leaves, made chiefly by corn flea beetles.

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Once inside the leaf, the bacteria may multiply until they fill the water conducting vessels in the veins of the leaf. If the bacteria spread into the stalk, they may fill many of the water-conducting vessels in the vascular bundles, and prevent the plants from getting water and food materials; thus the infected plants wilt.

How to Control Bacterial Wilt

Growing resistant hybrids or varieties is one method of controlling bacterial wilt. Many resistant hybrids are available.

There are no specific hybrids of corn known to be completely resistant to Stewart's leaf blight. Some of those that are resistant to northern corn leaf blight are also somewhat resistant to Stewart's leaf blight. The Golden Bantam types of sweet corn are generally more susceptible to bacterial wilt than the Evergreen and Country Gentleman types. Most of the commercially available sweet corn hybrids are now reasonably resistant to Bacterial wilt.

Where corn flea beetles are a problem, Purdue Entomologists recommend the use of dieldrin (18 percent emulsion concentrate containing 1 1/2 pounds actual material per gallon) at the rate of 1 quart per acre. The dieldrin should be mixed in 10 gallons of water and applied as a spray to one acre of corn. Spray should be directed over the plant rows to wet the plants and the soil around them.

How to Recognize Bacterial Wilt of Corn.

General symptoms on infected sweet corn plant.

Close-up of leaf symptoms

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